



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-292



Global Positioning System III (GPS III)

As of FY 2017 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Global Positioning System III (GPS III)

DoD Component

Air Force

Responsible Office

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Date Assigned: July 8, 2015

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 31, 2011

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 31, 2016

Mission and Description

Global Positioning System (GPS) is a satellite-based radio navigation system that provides worldwide military and civil users satellite signals they can process to determine accurate position, velocity, and time. On May 8, 2000, the USD(AT&L) approved entry into the initial modernization efforts for Navstar GPS. GPS III, an Acquisition Category ID program, is the next generation space vehicle (SV) that will provide significant enhancements to complete the modernization of the constellation. GPS III complies with 10 United States Code (USC) § 2281, ensuring the continued sustainment and operation of GPS for military and civilian purposes, and 51 USC § 50112, continuing as an international standard available on a continuous worldwide basis free of direct user fees.

As captured in a November 6, 2006 Memorandum, the JROC validated and endorsed the GPS III CDD for the first increment, validating the requirements for the GPS III program and authorized the Air Force to deliver SV01-SV08. In his February 27, 2015 ADM, the USD(AT&L) directed the procurement of SV09/10 as technical equivalents for SV01-08. Follow-on vehicles SV11+ will be procured in future increments.

The primary GPS III missions are worldwide positioning, navigation, and precise time transfer. GPS provides strategic and tactical support to the following DoD missions: Joint Operations by providing capabilities for Position, Navigation and Timing (PNT); Command, Control, Communications, and Intelligence; Special Operations; Military Operations in Urban Terrain; Defense-Wide Mission Support; Air Mobility; and Space Launch Orbital Support.

For military users, the GPS III program provides Precise Positioning Service (PPS) to military operations and force enhancement. It also provides increased anti-jam power to the earth coverage Military code signals and anti-exploitation techniques in order to prevent unauthorized use of the GPS PPS signal. In addition, the program will support the U.S. Nuclear Detonation Detection System mission for worldwide monitoring and detection of nuclear events via a hosted payload.

The GPS III program provides a Standard Positioning Service to a broad spectrum of civil users which will include the three civil signals (L1 C/A, L2C, and L5) flown on previous satellites. It will also transmit a new fourth civil signal (L1C), which is compatible with the European Galileo satellite navigation system signal, E1. L1C is also compatible with those signals planned for broadcast on Japan's Quasi-Zenith Satellite System, a system meant to augment GPS services. Once implemented, the common civil signal will be jointly broadcast by up to 60 satellites from both GPS and Galileo constellations, further increasing the accuracy and availability of user PNT solutions.

Executive Summary

Since the June 2015 quarterly exception SAR, measurable progress has been made on Space Vehicle (SV) 01. SV01 entered Thermal Vacuum (TVAC) testing on October 12, 2015, and successfully completed baseline TVAC testing on December 23, 2015 – a major system-level event. Significant confidence has been gained with contractor design and workmanship based on TVAC testing, demonstrating the satellite will perform successfully in a space environment.

Contractor Proposals for SV09-SV10 were received for the Long Lead Parts contract on July 30, 2015 and for the Production contract on August 31, 2015, with contract awards projected in the fourth Quarter of FY 2016.

The GPS III Non-Flight Satellite Testbed (GNST) continues to support bus and payload regression testing to verify test procedures. The GPS III program currently does not meet a Nuclear Detonation Detection System requirement for Electromagnetic Interference (EMI) noise emission at the Burst Detection Verification receiver band. The noise is radiating from the SV Bus, specifically the Scalable Power Regulation Unit and is being amplified by the solar arrays which act as highly efficient antennas. To effectively attenuate this noise, prototype EMI filtering hardware has been implemented on GNST, including prototype filter boxes, Faraday Cage improvements, and improved harnesses. Testing of these prototypes completed on February 19, 2016, and provided initial indications that the prototypes are likely to solve the EMI issue. SV01 EMI testing is scheduled for the third quarter FY 2016, and will be the test that determines if SV01 will need to be modified.

On January 31, 2016, USD(AT&L) signed the GPS III revised APB. This Change 1 to the APB was due to both cost and schedule breaches to the January 31, 2011 APB. In addition, this revised APB added SV09 and SV10 to the ACAT program of record.

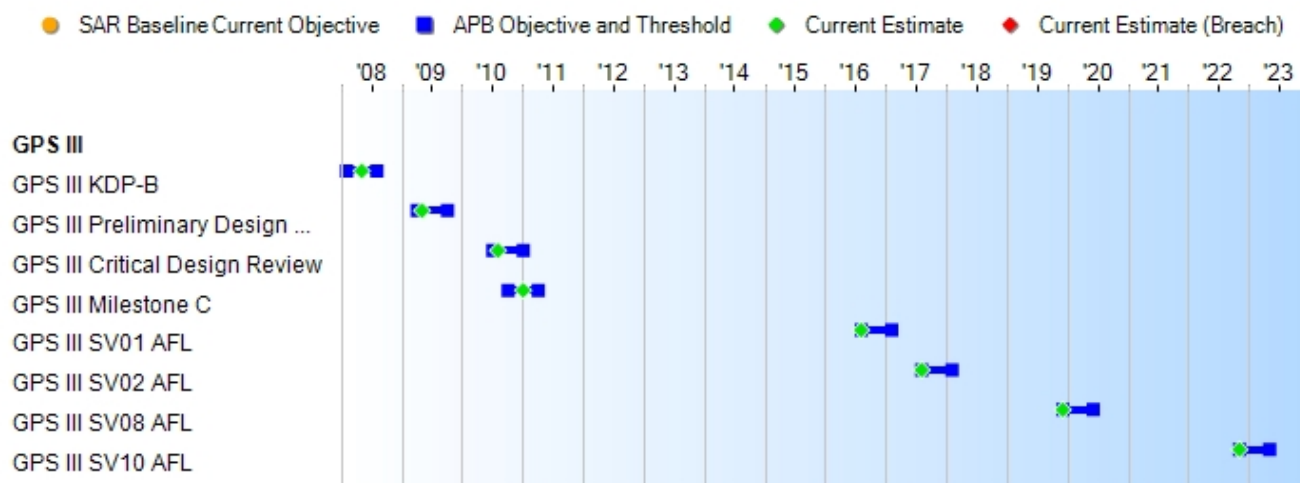
There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
GPS III KDP-B	Feb 2008	Feb 2008	Aug 2008	May 2008
GPS III Preliminary Design Review	Apr 2009	Apr 2009	Oct 2009	May 2009
GPS III Critical Design Review	Jul 2010	Jul 2010	Jan 2011	Aug 2010
GPS III Milestone C	Oct 2010	Oct 2010	Apr 2011	Jan 2011
GPS III SV01 AFL	Apr 2014	Aug 2016	Feb 2017	Aug 2016
GPS III SV02 AFL	Apr 2015	Aug 2017	Feb 2018	Aug 2017
GPS III SV08 AFL	May 2018	Dec 2019	Jun 2020	Dec 2019
GPS III SV10 AFL	N/A	Nov 2022	May 2023	Nov 2022

(Ch-1)

Change Explanations

(Ch-1) GPS III SV10 AFL was added in the January 31, 2016 APB in support of SV10 procurement.

Acronyms and Abbreviations

AFL - Available for Launch
 KDP - Key Decision Point
 SV - Space Vehicle

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
Backward Compatibility				
All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).	All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).	(T=O) All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).	TBD	All modifications made to the existing GPS Space Segment and Control Segment shall allow continued operation of existing ICD-GPS-200 and 700, IS-GPS-705, and SS-GPS-001 compliant UE and continued operation of legacy receivers (to include Federal augmentation system receivers).
User Range Error (meters)				
.2	.2	1.1	TBD	1.0
Net-Ready				
The system must fully support execution of all joint operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations.	The system must fully support execution of all joint operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations.	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations.	TBD	The system must fully support execution of all joint operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations.
Satellite Availability				
0.984	0.984	(T=O) 0.984	TBD	0.984
Boosted Earth-Coverage M-Code Power (dBW)				
-148	-148	-153	TBD	-151.7
Minimum L1C Signal Power				
-157	-157	(T=O) -157	TBD	-157
Position and Time Transfer Integrity (Probability of Misleading SIS Information)				
0.00000001	0.00000001	0.00001	TBD	0.00000001

Requirements Reference

CDD for Increment A dated November 6, 2006

Change Explanations

None

Notes

KPPs Demonstrated Performance remains TBD until testing can be verified with the completion of the SV01 Final SPT.

For the Net Ready KPP, Demonstrated Performance is TBD until it is tested and verified with the completion of IST 3-1 which verifies that OCX Block 1 can command and control legacy GPS II and new GPS III SVs.

ECD for all of these tests is August 2016.

Acronyms and Abbreviations

dBW - Decibel-watt
ECD - Estimated Completion Date
GPS - Global Positioning System
ICD - Interface Control Document
IS - Interface Specifications
IST - Integrated System Test
M-Code - Military Code
SIS - Signal in Space
SPT - System Performance Test
SS - System Specifications
SV - Space Vehicle
UE - User Equipment

Track to Budget

General Notes

In December 2014, the Office of Management and Budget directed the DoD to establish a new space procurement appropriation as a five-year availability account. Beginning in FY 2016, Air Force major procurement funding formerly under appropriation 3020F (Missile Procurement, Air Force) BA 05 will now be under 3021F (Space Procurement, Air Force) BA 01.

RDT&E

Appn	BA	PE	
Air Force	3600	07	0305265F
	Project	Name	
	67A019	GPS IIIA (Shared)	
Air Force	3600	04	0603421F
	Project	Name	
	644993	GPS III Development (Sunk)	

Notes

The shared funding line includes funding for SV11+ however these funds are not included in this SAR.

Procurement

Appn	BA	PE	
Air Force	3020	05	0305265F
	Line Item	Name	
	GPSIII	GPS III Space Segment (Shared) (Sunk)	
Air Force	3021	01	0305265F
	Line Item	Name	
	GPSIII	GPS III Space Segment (Shared)	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2010 \$M			BY 2010 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	2623.9	2981.9	3280.1	2926.0	2653.8	3080.1	3018.6
Procurement	1519.0	2303.3	2533.9	2254.4	1616.0	2570.0	2538.8
Flyaway	--	--	--	1855.4	--	--	2041.1
Recurring	--	--	--	1847.5	--	--	2031.7
Non Recurring	--	--	--	7.9	--	--	9.4
Support	--	--	--	399.0	--	--	497.7
Other Support	--	--	--	399.0	--	--	497.7
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	4142.9	5285.2	N/A	5180.4	4269.8	5650.1	5557.4

Current APB Cost Estimate Reference

SCP dated July 02, 2015

Confidence Level

Confidence Level of cost estimate for current APB: 60%

The current APB is established at the 60% confidence level. This estimate is built upon the February 2015 approved program rebaseline, historical actual cost information to the maximum extent possible, and most importantly, based on conservative assumptions that are consistent with actual demonstrated contractor and government performance for a series of acquisition programs in which the Directorate has been successful.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	2	2	2
Procurement	6	8	8
Total	8	10	10

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2017 President's Budget / December 2015 SAR (TY\$ M)									
Appropriation	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
RDT&E	2668.5	142.2	91.7	27.1	28.5	24.2	7.2	29.2	3018.6
Procurement	1797.9	187.7	30.7	34.9	51.5	72.4	55.5	308.2	2538.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2017 Total	4466.4	329.9	122.4	62.0	80.0	96.6	62.7	337.4	5557.4
PB 2016 Total	4205.7	126.7	42.2	45.7	68.9	64.9	34.7	121.9	4710.7
Delta	260.7	203.2	80.2	16.3	11.1	31.7	28.0	215.5	846.7

Quantity Summary										
FY 2017 President's Budget / December 2015 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	7	1	0	0	0	0	0	0	8
PB 2017 Total	2	7	1	0	0	0	0	0	0	10
PB 2016 Total	2	6	0	0	0	0	0	0	0	8
Delta	0	1	1	0	0	0	0	0	0	2

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	51.5
2003	--	--	--	--	--	--	39.7
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	21.2
2006	--	--	--	--	--	--	51.4
2007	--	--	--	--	--	--	195.2
2008	--	--	--	--	--	--	183.1
2009	--	--	--	--	--	--	335.3
2010	--	--	--	--	--	--	366.4
2011	--	--	--	--	--	--	406.0
2012	--	--	--	--	--	--	400.3
2013	--	--	--	--	--	--	241.4
2014	--	--	--	--	--	--	193.3
2015	--	--	--	--	--	--	183.7
2016	--	--	--	--	--	--	142.2
2017	--	--	--	--	--	--	91.7
2018	--	--	--	--	--	--	27.1
2019	--	--	--	--	--	--	28.5
2020	--	--	--	--	--	--	24.2
2021	--	--	--	--	--	--	7.2
2022	--	--	--	--	--	--	6.4
2023	--	--	--	--	--	--	6.3
2024	--	--	--	--	--	--	5.1
2025	--	--	--	--	--	--	4.4
2026	--	--	--	--	--	--	2.0
2027	--	--	--	--	--	--	2.0
2028	--	--	--	--	--	--	2.0
2029	--	--	--	--	--	--	1.0
Subtotal	2	--	--	--	--	--	3018.6

Annual Funding 3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2010 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	60.1
2003	--	--	--	--	--	--	45.7
2004	--	--	--	--	--	--	--
2005	--	--	--	--	--	--	23.2
2006	--	--	--	--	--	--	54.6
2007	--	--	--	--	--	--	202.2
2008	--	--	--	--	--	--	185.9
2009	--	--	--	--	--	--	335.9
2010	--	--	--	--	--	--	362.4
2011	--	--	--	--	--	--	394.2
2012	--	--	--	--	--	--	381.7
2013	--	--	--	--	--	--	226.6
2014	--	--	--	--	--	--	179.0
2015	--	--	--	--	--	--	168.4
2016	--	--	--	--	--	--	128.4
2017	--	--	--	--	--	--	81.3
2018	--	--	--	--	--	--	23.6
2019	--	--	--	--	--	--	24.3
2020	--	--	--	--	--	--	20.2
2021	--	--	--	--	--	--	5.9
2022	--	--	--	--	--	--	5.1
2023	--	--	--	--	--	--	5.0
2024	--	--	--	--	--	--	3.9
2025	--	--	--	--	--	--	3.3
2026	--	--	--	--	--	--	1.5
2027	--	--	--	--	--	--	1.5
2028	--	--	--	--	--	--	1.4
2029	--	--	--	--	--	--	0.7
Subtotal	2	--	--	--	--	--	2926.0

Annual Funding 3020 Procurement Missile Procurement, Air Force								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2010	--	96.0	--	--	96.0	--	96.0	
2011	--	--	--	--	--	--	--	
2012	2	413.1	--	--	413.1	39.0	452.1	
2013	2	458.2	--	--	458.2	33.0	491.2	
2014	2	417.5	--	--	417.5	31.8	449.3	
2015	1	289.1	--	0.7	289.8	19.5	309.3	
Subtotal	7	1673.9	--	0.7	1674.6	123.3	1797.9	

Annual Funding 3020 Procurement Missile Procurement, Air Force								
Fiscal Year	Quantity	BY 2010 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2010	--	94.0	--	--	94.0	--	94.0	
2011	--	--	--	--	--	--	--	
2012	2	390.1	--	--	390.1	36.8	426.9	
2013	2	423.0	--	--	423.0	30.5	453.5	
2014	2	379.9	--	--	379.9	29.0	408.9	
2015	1	260.2	--	0.6	260.8	17.5	278.3	
Subtotal	7	1547.2	--	0.6	1547.8	113.8	1661.6	

Cost Quantity Information		
3020 Procurement Missile Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2010 \$M
2010	--	--
2011	--	--
2012	2	442.0
2013	2	442.1
2014	2	442.1
2015	1	221.0
Subtotal	7	1547.2

Annual Funding 3021 Procurement Space Procurement, Air Force								
Fiscal Year	Quantity	TY \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2016	1	158.9	--	--	158.9	28.8	187.7	
2017	--	5.2	--	2.3	7.5	23.2	30.7	
2018	--	7.8	3.7	3.1	14.6	20.3	34.9	
2019	--	18.7	6.4	1.1	26.2	25.3	51.5	
2020	--	31.6	8.6	1.1	41.3	31.1	72.4	
2021	--	30.1	8.0	1.1	39.2	16.3	55.5	
2022	--	37.5	6.2	--	43.7	22.9	66.6	
2023	--	25.9	4.2	--	30.1	23.3	53.4	
2024	--	0.5	2.2	--	2.7	19.2	21.9	
2025	--	--	1.5	--	1.5	19.0	20.5	
2026	--	--	0.8	--	0.8	18.8	19.6	
2027	--	--	--	--	--	18.8	18.8	
2028	--	--	--	--	--	18.8	18.8	
2029	--	--	--	--	--	18.8	18.8	
2030	--	--	--	--	--	18.8	18.8	
2031	--	--	--	--	--	17.7	17.7	
2032	--	--	--	--	--	15.4	15.4	
2033	--	--	--	--	--	11.9	11.9	
2034	--	--	--	--	--	6.0	6.0	
Subtotal	1	316.2	41.6	8.7	366.5	374.4	740.9	

Annual Funding								
3021 Procurement Space Procurement, Air Force								
Fiscal Year	Quantity	BY 2010 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2016	1	140.5	--	--	140.5	25.4	165.9	
2017	--	4.5	--	2.0	6.5	20.1	26.6	
2018	--	6.6	3.1	2.6	12.3	17.4	29.7	
2019	--	15.6	5.3	0.9	21.8	21.1	42.9	
2020	--	25.8	7.0	0.9	33.7	25.5	59.2	
2021	--	24.1	6.4	0.9	31.4	13.1	44.5	
2022	--	29.5	4.9	--	34.4	17.9	52.3	
2023	--	20.0	3.2	--	23.2	17.9	41.1	
2024	--	0.4	1.7	--	2.1	14.4	16.5	
2025	--	--	1.1	--	1.1	14.1	15.2	
2026	--	--	0.6	--	0.6	13.6	14.2	
2027	--	--	--	--	--	13.4	13.4	
2028	--	--	--	--	--	13.1	13.1	
2029	--	--	--	--	--	12.9	12.9	
2030	--	--	--	--	--	12.6	12.6	
2031	--	--	--	--	--	11.6	11.6	
2032	--	--	--	--	--	9.9	9.9	
2033	--	--	--	--	--	7.5	7.5	
2034	--	--	--	--	--	3.7	3.7	
Subtotal	1	267.0	33.3	7.3	307.6	285.2	592.8	

Cost Quantity Information		
3021 Procurement Space Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2010 \$M
2016	1	267.0
2017	--	--
2018	--	--
2019	--	--
2020	--	--
2021	--	--
2022	--	--
2023	--	--
2024	--	--
2025	--	--
2026	--	--
2027	--	--
2028	--	--
2029	--	--
2030	--	--
2031	--	--
2032	--	--
2033	--	--
2034	--	--
Subtotal	1	267.0

Low Rate Initial Production

There is no LRIP for this program.

Foreign Military Sales

None

Nuclear Costs

None

Unit Cost

Unit Cost Report

Item	BY 2010 \$M	BY 2010 \$M	% Change
	Current UCR Baseline (Jan 2016 APB)	Current Estimate (Dec 2015 SAR)	

Program Acquisition Unit Cost

Cost	5285.2	5180.4	
Quantity	10	10	
Unit Cost	528.520	518.040	-1.98

Average Procurement Unit Cost

Cost	2303.3	2254.4	
Quantity	8	8	
Unit Cost	287.912	281.800	-2.12

Item	BY 2010 \$M	BY 2010 \$M	% Change
	Original UCR Baseline (May 2008 APB)	Current Estimate (Dec 2015 SAR)	

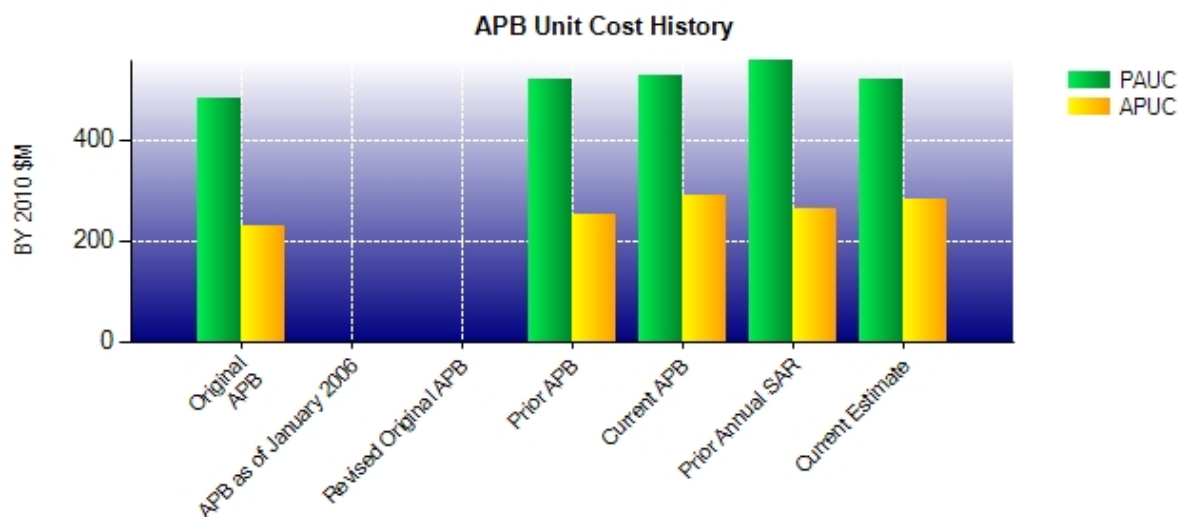
Program Acquisition Unit Cost

Cost	3840.8	5180.4	
Quantity	8	10	
Unit Cost	480.100	518.040	+7.90

Average Procurement Unit Cost

Cost	1381.0	2254.4	
Quantity	6	8	
Unit Cost	230.167	281.800	+22.43

Unit Cost History



Item	Date	BY 2010 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	May 2008	480.100	230.167	500.288	248.383
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Jan 2011	517.862	253.167	533.725	269.333
Current APB	Jan 2016	528.520	287.912	565.010	321.250
Prior Annual SAR	Dec 2014	557.762	262.750	588.838	290.133
Current Estimate	Dec 2015	518.040	281.800	555.740	317.350

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)										
Initial PAUC Development Estimate	Changes								PAUC Production Estimate	
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total		
500.288	-9.013	0.000	0.775	0.000	63.063	-9.513	-11.875	33.437	533.725	

Current SAR Baseline to Current Estimate (TY \$M)										
PAUC Production Estimate	Changes								PAUC Current Estimate	
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total		
533.725	3.050	-31.275	0.000	0.000	-0.110	0.000	50.350	22.015	555.740	

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
248.383	-6.450	0.000	1.033	0.000	54.933	-12.733	-15.833	20.950	269.333

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
269.333	2.562	27.005	0.000	0.000	-44.488	0.000	62.938	48.017	317.350

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Feb 2008	Feb 2008	May 2008
Milestone C	N/A	Sep 2009	Oct 2010	Jan 2011
IOC	N/A	N/A	N/A	N/A
Total Cost (TY \$M)	N/A	4002.3	4269.8	5557.4
Total Quantity	N/A	8	8	10
PAUC	N/A	500.288	533.725	555.740

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	2653.8	1616.0	--	4269.8
Previous Changes				
Economic	+14.6	+26.3	--	+40.9
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+322.6	-264.9	--	+57.7
Other	--	--	--	--
Support	--	+342.9	--	+342.9
Subtotal	+337.2	+104.3	--	+441.5
Current Changes				
Economic	-4.6	-5.8	--	-10.4
Quantity	--	+754.7	--	+754.7
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+32.2	-91.0	--	-58.8
Other	--	--	--	--
Support	--	+160.6	--	+160.6
Subtotal	+27.6	+818.5	--	+846.1
Total Changes	+364.8	+922.8	--	+1287.6
CE - Cost Variance	3018.6	2538.8	--	5557.4
CE - Cost & Funding	3018.6	2538.8	--	5557.4

Summary BY 2010 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	2623.9	1519.0	--	4142.9
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+280.1	-243.0	--	+37.1
Other	--	--	--	--
Support	--	+284.2	--	+284.2
Subtotal	+280.1	+41.2	--	+321.3
Current Changes				
Economic	--	--	--	--
Quantity	--	+661.1	--	+661.1
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+22.0	-81.7	--	-59.7
Other	--	--	--	--
Support	--	+114.8	--	+114.8
Subtotal	+22.0	+694.2	--	+716.2
Total Changes	+302.1	+735.4	--	+1037.5
CE - Cost Variance	2926.0	2254.4	--	5180.4
CE - Cost & Funding	2926.0	2254.4	--	5180.4

Previous Estimate: June 2015

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-4.6
Adjustment for current and prior escalation. (Estimating)	+3.5	+3.7
Revised estimate for Space Vehicle (SV) 01 and SV02 due to technical issues with the Mission Data Unit (MDU). (Estimating)	+88.7	+100.8
Reallocation of funding between SV01- SV10 to SV11+. (Estimating)	-55.2	-56.4
Reduction due to higher Air Force priorities. (Estimating)	-8.7	-9.1
Revised estimate for Small Business Innovation Research in FY 2015. (Estimating)	-6.3	-6.8
RDT&E Subtotal	+22.0	+27.6

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-5.8
Adjustment for current and prior escalation. (Estimating)	+3.5	+3.8
Quantity variance resulting from an increase of 1 satellite from 0 to 1 (Space Procurement, Air Force (SPAF)). (Subtotal)	+208.5	+235.9
Quantity variance resulting from an increase of 1 satellite from 0 to 1 (SPAF). (Quantity)	(+253.2)	(+286.4)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-44.7)	(-50.5)
Additional quantity variance due to actuals for the procurement of SV10 in FY 2016 (SPAF). (Quantity)	+55.7	+77.6
Quantity variance resulting from an increase of 1 satellite from 6 to 7 (Missile Procurement, Air Force (MPAF)). (Subtotal)	+208.5	+231.7
Quantity variance resulting from an increase of 1 satellite from 6 to 7 (MPAF). (Quantity)	(+253.2)	(+281.4)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(-44.7)	(-49.7)
Additional quantity variance due to increased costs and long lead and actuals for the procurement of SV09 in FY 2015 (MPAF). (Quantity)	+99.0	+109.3
Revised estimate to reclassify funds from support to flyaway. (Estimating)	+0.7	+0.7
Revised estimate to reclassify funds from flyaway to support. (Estimating)	-0.6	-0.7
Revised estimate for SV07 and SV08 production due to SV01 MDU technical issues. (Estimating)	+1.8	+2.1
Revised estimate for additional costs for Payload and storage. (Estimating)	+2.3	+3.3
Adjustment for current and prior escalation. (Support)	+0.5	+0.5
Decrease in Other Support due to reclassification of funds from support to flyaway and other miscellaneous adjustments (MPAF). (Support)	-14.3	-15.7
Increase in Other Support due to additional support requirements, increase in launch operations and SV processing, increase in other government costs, and reallocation efficiency (SPAF). (Support)	+128.6	+175.8
Procurement Subtotal	+694.2	+818.5

(QR) Quantity Related

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: Global Positioning System (GPS) III (Development)
Contractor: Lockheed Martin Space Systems Denver
Contractor Location: Littleton, CO 80125
Contract Number: FA8807-08-C-0010
Contract Type: Cost Plus Incentive Fee (CPIF), Cost Plus Award Fee (CPAF)
Award Date: May 15, 2008
Definitization Date: May 15, 2008

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1249.1	N/A	2	1414.5	N/A	2	2180.8	2194.1

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional scope associated with the award of the GPS III Launch and Checkout Capability, associated information security upgrades, and additional costs as a result of immature technical requirements for parts and processes, as well as additional funds to cover provisional overruns.

Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/25/2015)	+15.5	-11.4
Previous Cumulative Variances	+10.8	-1.8
Net Change	+4.7	-9.6

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to pre-acoustics installation and deployments for Space Vehicle (SV)01 requiring less work than planned and a delay to the start of the contingency operations study.

The unfavorable net change in the schedule variance is due to delays in starting Thermal Vacuum testing at the Lockheed Martin factory as well as a five-month delay in the delivery of the navigation payload element for SV02.

Notes

The estimated price at completion decreased primarily due to the reduction of available fee.

Contract Identification

Appropriation: Procurement
Contract Name: Global Positioning System (GPS) III (Production)
Contractor: Lockheed Martin Space Systems Denver
Contractor Location: Littleton, CO 80125
Contract Number: FA8807-08-C-0010/2
Contract Type: Cost Plus Incentive Fee (CPIF), Fixed Price Incentive(Firm Target) (FPIF)
Award Date: May 15, 2008
Definitization Date: May 15, 2008

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
74.7	N/A	2	767.5	N/A	6	1227.4	1230.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the addition of the Space Vehicle (SV)05/06 and SV07/08 efforts, as well as adjustments in cost estimates resulting from the 2015 Over Target Baseline.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/25/2015)	+13.8	+1.7
Previous Cumulative Variances	+5.0	+5.3
Net Change	+8.8	-3.6

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to Earned Value Management administrative corrections in June due to general ledger and frangibolt miscoding issues as well as efficient performance in the navigation payload element integrated product team during regression testing on Serial Number 103 Mission Data Units. Also Lockheed Martin is realigning their subcontract dates to better account for hardware delivery dates.

The unfavorable net change in the schedule variance is due to material actual cost transfers and subcontract correction and realignment. In the month of October, there was a negative schedule variance due to the correction of subcontract work being improperly coded within Lockheed Martin's accounting system as material.

Notes

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement
Contract Name: GPS III Long Lead SV05-08
Contractor: Lockheed Martin Space Systems Denver
Contractor Location: Littleton, CO 80125
Contract Number: FA8807-13-C-0002
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: February 08, 2013
Definitization Date: February 08, 2013

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
119.5	142.4	4	134.0	142.4	4	133.5	133.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to additional funds to cover provisional overruns.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/25/2015)	+0.4	-0.1
Previous Cumulative Variances	+0.1	-14.2
Net Change	+0.3	+14.1

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to transfer of material actuals.

The favorable net change in the schedule variance is due to transfers of material actuals within Lockheed Martin's inventory and Earned Value systems.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	2	0.00%
Production	0	0	8	0.00%
Total Program Quantity Delivered	0	0	10	0.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	5557.4	Years Appropriated	15
Expended to Date	3292.1	Percent Years Appropriated	45.45%
Percent Expended	59.24%	Appropriated to Date	4796.3
Total Funding Years	33	Percent Appropriated	86.30%

The above data is current as of February 23, 2016.

Delivery of Space Vehicle 01 is on-track to be delivered in the 4th quarter of FY 2016.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:

Source of Estimate:

Quantity to Sustain:

Unit of Measure:

Service Life per Unit:

Fiscal Years in Service:

The GPS III program will provide O&S for on-orbit support through the Launch and On-Orbit Support contract. For Space Vehicle (SV)01 and SV02, this is funded with RDT&E, AF and for SV03-08, it is funded with Space Procurement, AF. These costs are captured in the cost and funding section of the SAR and will not appear here. The O&S responsibility for the control system will be accomplished through the GPS Logistics Directorate within the Next Generation Operational Control System.

Sustainment Strategy

Antecedent Information

Annual O&S Costs BY2010 \$M		
Cost Element	GPS III	No Antecedant (Antecedent)
Unit-Level Manpower	--	--
Unit Operations	--	--
Maintenance	--	--
Sustaining Support	--	--
Continuing System Improvements	--	--
Indirect Support	--	--
Other	--	--
Total	--	--

Item	Total O&S Cost \$M			
	GPS III			No Antecedant (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	0.0	0.0	N/A	N/A
Then Year	0.0	N/A	N/A	0.0
O&S Cost Variance				

Category	BY 2010 \$M	Change Explanations
Prior SAR Total O&S Estimates - Jun 2015 SAR	0.0	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	0.0	
Current Estimate	0.0	

Disposal Estimate Details**Date of Estimate:****Source of Estimate:****Disposal/Demilitarization Total Cost (BY 2010 \$M):**